

Product Development Projects in an Organisational Context

27690 – Introduction to Project Management

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Department of Management Engineering



Outline for this afternoon...

Section 4: 13.10 – 13.45

Innovation Management

Section 5: 14.00 – 14.45

The Product Development Process

Section 6: 15.00 – 15.45

Integrated Product Development

Round-up: 15.45 – 16.00

Final round-up

16.00: Put the Fluoxetine away, we're done!

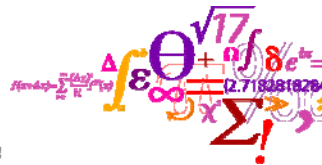
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SECTION 4 (13.10 - 13.45):

Managing Innovation

Controlled freedom

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4th Section - Learning objectives

To be able to:

1. Evaluate the scope of activities related to innovation management.
2. Identify important business criteria, trade-offs and innovation measures.
3. Follow the four stage innovation management model.
4. Identify the leadership roles associated with your project work

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The Important Business Factors of Innovation

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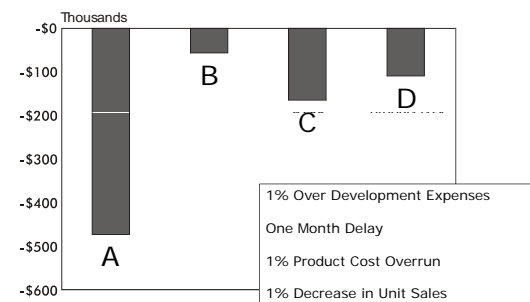
Typical product development figures

- Lifetime sales \$100,000,000
- Cost of delay \$470,000 per month
- Profit 16% of sales
- Product costs 63% of sales

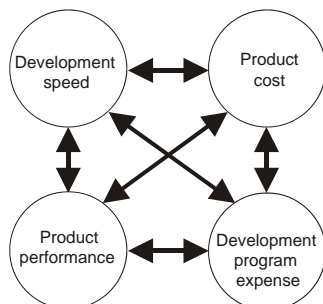
Smith & Rienertsen, "Developing Products in half the time."

Rules of thumb financial analysis

REDUCTION IN LIFE CYCLE PROFITS

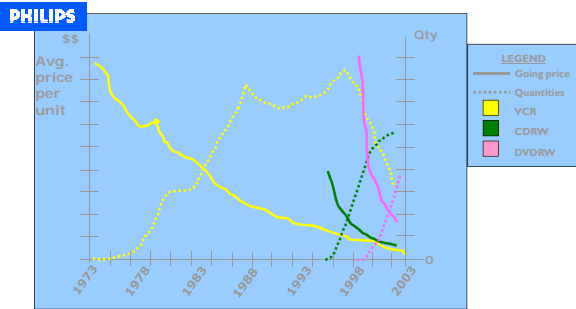


Important Tradeoffs in Design



Price Erosion

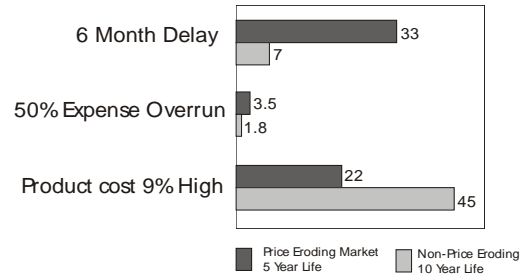
Changing Business Environment



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The Importance of Delay Varies

PERCENT REDUCTION IN LIFE CYCLE PROFITS



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Economic Analysis

- Even simple models are better than none
- Pay attention to price erosion assumptions
- Treat cost and performance problems as temporary
- Convert results to decision rules
- Use a cross-functional team
- Do modelling early in the process
- Focus on comprehensible rather than elegant models
- Treat speed as a business decision not a philosophy

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What to make of Product Development Philosophies

IDEO: "FAIL OFTEN AND EARLY"

James Dyson: "Each failure, the 5126 failures taught me so much. Success teaches you nothing."

How applicable is this philosophy to all products and industries?

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The reality of time to market

Half of all new product launches are late to market!!!

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Best from the Worst



- An astounding **77 percent** of development projects hit their **profit targets** in top performing firms. In poor performers, only **one project in four** achieves its profit targets.
- Top performers have an admirable **79.5 percent commercial success rate** for development projects – poorer performers have **half the success rate**.
- Top performers achieve **38 percent** of total sales from new products launched in the previous three years – poor performers have **four times less**.
- The great majority (**79 percent**) of top performers' projects reach the market on schedule (versus only **25 percent** for poor performers).
- And the slip rate for top performers is remarkably low at **17 percent** (versus a high of **44 percent** for poor performers).

Excerpt from *Successful Product Innovation: A Collection of Our Best*. Authored by Robert G. Cooper and Scott J. Edgett.

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Managing Innovation



A number of tools can be used to speed-up the front end:

- Create long term product plans
- Provide excess capacity in development budgets
- Break development funding into pieces
- Develop screening approaches for new ideas
- Establish measurement systems for cycle time
- Develop *bimodal planning* and approval processes
- Create functions to manage development

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Measurements of the process



PERFORMANCE MEASURES

DESCRIPTION

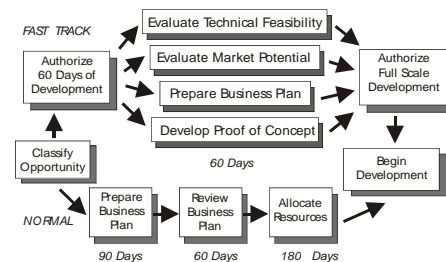
| | |
|------------------------|--|
| Break Even Time | Time from first dollar spent to break even |
| Idea to Shipment Time | Time from idea identification to first customer shipment |
| Development Cycle Time | Time from first dollar spent to first customer shipment |
| Victory Margin | Number of months ahead of next 3 closest competitors |

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Bimodal Process

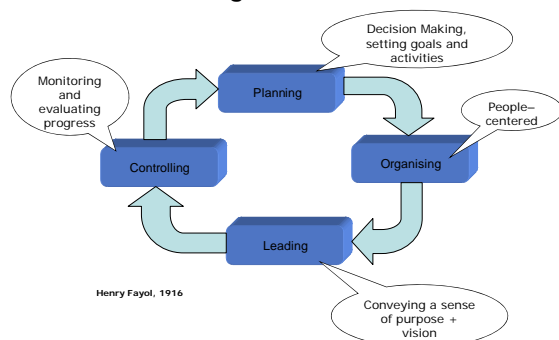


In some cases it is worth developing a bimodal process to respond to the dramatic differences in the value of time.



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Functions of Management



Henry Fayol, 1916

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Innovation Management

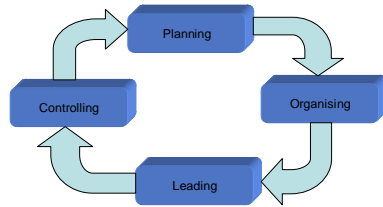


Effective Management is essential because Innovation deals with these contextual factors:

- **Uncertainty**
 - technology, consumer, market
- **Complexity**
 - expertise
- **Messy/untidy**
 - false starts, external events, chance
- **Disruptive**
 - changes in organization
- **Creative**
 - improve conditions for creativity

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Functions of Management



Henry Fayol, 1916

Let us go through the model!

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STAGE 1: PLANNING

Two dominant techniques used at this stage:

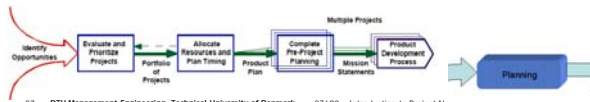
- Project management
- Development funnel



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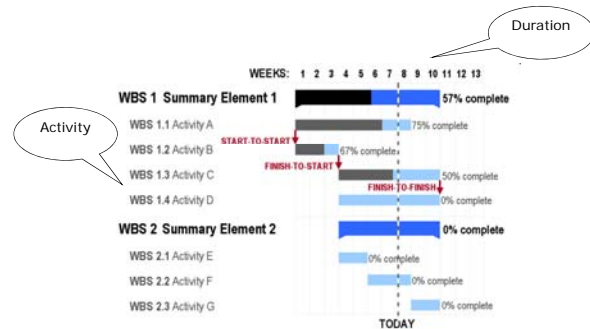
5 steps in Project Management

1. Determine the goal(s)
2. Identify the tasks or activities to be undertaken
3. Estimate the duration of the activities/tasks
4. Determine the sequence in which the activities/tasks have to be completed and link them into the overall model of the project
5. Develop a project plan that provides an overall schedule for the project



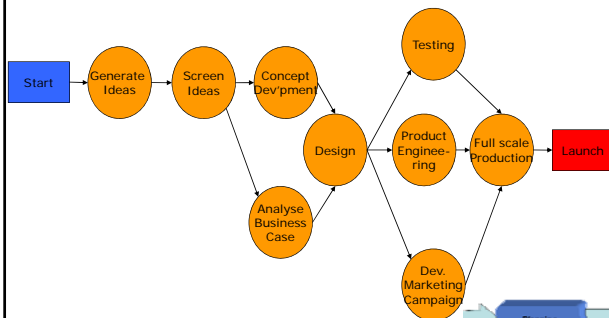
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Gantt (bar) chart: Activity vs. duration



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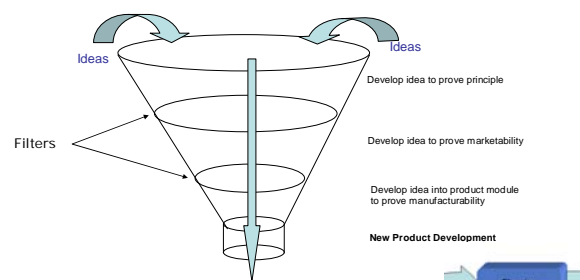
Project Management network *Interconnections between tasks*



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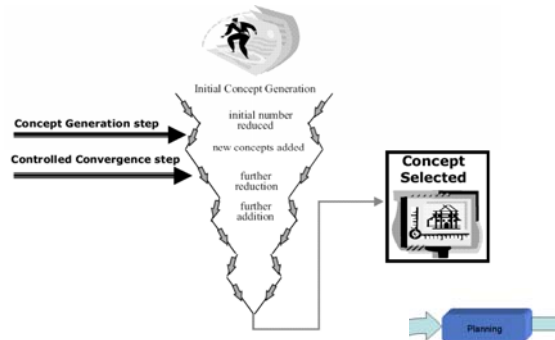
Development Funnel

A structured (systematic) approach to getting from an idea (ideas) to the successful launch of a new product or service



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Controlled Convergence



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Aspects of Work affected by Structure

Why is the internal shape or structure of an organisation so important and how does it facilitate innovation?

Internal structure affects:

- Communication channels
- Flows of information

*Knowledge transfer
(absorptive capacity)*

- Working relationships
- Working practices
- Work environment

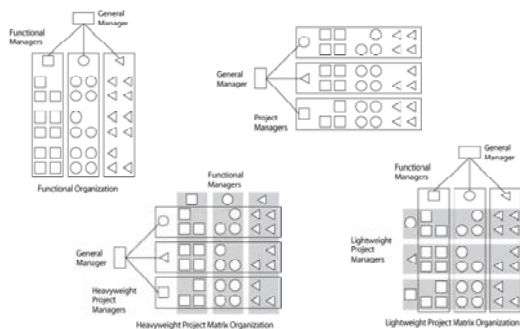
*Must cope with uncertainty and
unpredictability*

- Corporate culture



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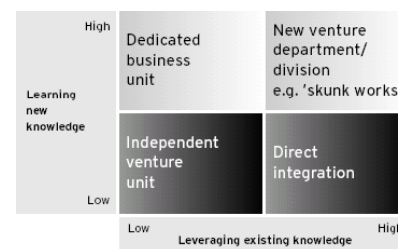
Organisation types



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Typology of Corporate Venturing

In a management context: Through internal structural devices



Tidd and Taurins, 1999



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Direct Integration

- No separate entity created to conduct innovation
- Easy to create
- Fits existing corporate culture
- Relies on an innovative culture from parent company
- Can suffer from 'lock-in'



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Dedicated business unit

- A separate entity
- Separately accountable
- Typically for products with very short development phases
- Incremental innovation



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Independent venture unit

- Radical innovation department
- Greater informality, teamwork, creativity and dynamism.
- A company within a company

Google is perhaps the extreme



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New venture

- Separate company and entity
Though parent may be stakeholder
- Greater autonomy
- Greater focus on goal



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Leading

Leadership is stated as the "process of social influence in which one person can enlist the aid and support of others in the accomplishment of a common task."



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Leadership Roles

- Project leader: Formal position
- Product champion (Shon 1963)
 - a leader who can communicate and treat the innovation as their "child"
 - Knows the company quite well
- Godfather: The least formal role (Tidd *et al.*, 2001)
 - Behind the scene role (is it leadership?)
 - Providing support to those involved in the innovation
 - Senior in the company
- Gatekeeper
 - Play a key part in networking
 - Deals with knowledge in the company (repository and knowing who else)
 - Links between different parts of the organisation

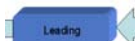


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Motivational Schemes

Practices and schemes developed to enable employees to contribute actively to innovation

- Bootlegging (Augsdorfer 2005)
- Ideas programmes
- Research clubs



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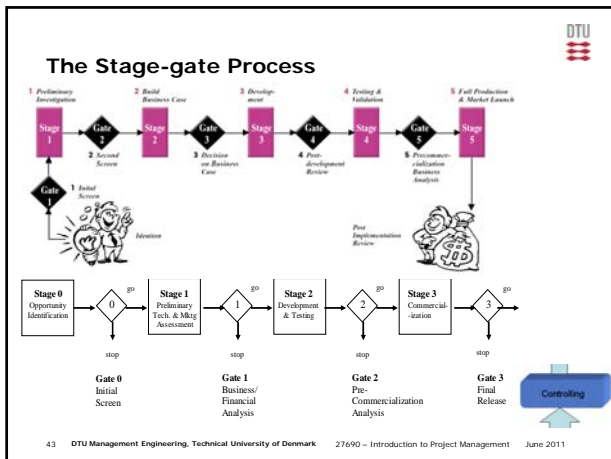
Corporate Culture supporting Innovation

Innovative companies generally promote:

- Outward-looking orientation
- Facilitating communication
- Openness to new ideas
- Challenging established ideas
- Acceptability of failure
- Promotion of evaluation and reflection



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Summary

- Tools enable managers to provide a degree of structure in NPD
- Management of innovation should increase the prospect of success in NPD
- Management helps manage innovation but managers and employees still have to “Innovate!”

Meeting the learning objectives?

To be able to:

1. **Evaluate** the scope of activities related to innovation management.
2. **Identify** important business criteria, trade-offs and innovation measures.
3. **Follow** the four stage innovation management model.
4. **Identify** the leadership roles associated with your project work

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Exercises (in pairs)

- 1) Who will/has performed the various leadership roles in a development projects involving you?
- 2) If you haven't already done so:
 - A. Draw out a Gantt chart for your project work (slide 28)
 OR:
 - B. Draw out a task connectivity diagram (slide 29)
- 3) Write 3 questions that you will ask of your project company in order to determine the important trade-offs involved in your project work (slide 11).

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Any Questions ?

Back by 14.00

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